neither form is the state of the thyroid gland always the same; loss or serious perversion of function is the important factor, and this may follow absence, atrophy, or hypertrophy. There is no fixed stamp or type of cretin; the range is from a mere mass of humanity without a ray of intelligence, to the high-grade cretin with but slight bodily and still slighter mental changes; and it is only reasonable to believe that to these grades are correlated varying degrees of thyroid degeneration. Bircher lays great stress upon the presence of normal-looking tissue in the glands which he excised from cretins, but gives no statement of any histological study; nor is the development of myxœdema in one of these cases, and of tetany in another, inconsistent with the view that the thyroid is the seat of the essential lesion, since the activity of the gland may have been sufficient only to maintain the organism at a certain plane of cretinoid existence.

If the experimental work on the importance of the para-thyroids should be confirmed, the whole question will have to be reviewed from this standpoint.

There are, of course, gaps in our knowledge, but the evidence at present available warrants, I believe, the conclusion that the changes characteristic of cretinism, endemic as well as sporadic, result from *loss of function of the thyroid gland.*

THE INFLAMMATIONS OF THE COLON AND THEIR TREATMENT.

By Francis Delafield, M.D.,
of New York.

The descriptions of dysentery to be found in books, and the ideas concerning dysentery which exist in the minds of physicians, are derived largely from the consideration of four sets of cases: the severe and often fatal dysentery of tropical countries, the dysentery which has always accompanied armies, the mild catarrhal dysentery of temperate climates, and the more recently described amœbic dysentery.

For those of us who live and practise in temperate climates something more is required. There are a number of points concerning which we need the teachings of local experience. The causation, lesions, prognosis, and treatment of inflammations of the colon as they occur in ordinary practice in temperate climates have not as yet been studied in sufficient detail.

This paper is an attempt to describe the different forms of colitis which are to be seen in the city of New York and its suburbs.

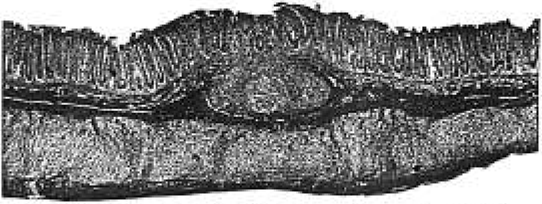
In New York, while the disease is not at most times very prevalent, yet the variety of cases is considerable, so that in the course of years one may see a number of cases of inflammation of the colon which differ widely from each other.

I. The most common of all the forms of colitis, and the one with which every physician is familiar, is that in which there are no structural changes in the wall of the colon, nothing but congestion, an increased production of mucus, and an exudation of serum. It is usually called acute catarrhal colitis or acute catarrhal dysentery.

For practical purposes it is necessary to divide this class of cases into two varieties: one characterized by the increased production of mucus, the other by the increased exudation of serum.

1. *Colitis with an increased production of mucus.* As this form of colitis is rarely fatal in adults, our knowledge of the lesions is derived from it as it occurs in children, as it is associated with other forms of colitis, as it is produced experimentally in animals, and from the character of the discharges from the bowels during life. The inflammation begins regularly in the rectum, and either remains confined to this part of the colon or extends upward. But in children a large part of the colon and the lower end of the ileum may be inflamed from the first. The glandular and connective tissue coats are more or less swollen and congested and infiltrated with serum and a few leucocytes. There is an increased production of mucus, which coats the inner surface of the colon and is passed by the patient. There is often a moderate bleeding from the surface of the inflamed mucous membrane. The epithelial cells which line the glandular tubules are distended with mucus; the superficial cells desquamate and are mixed with the mucus. The solitary lymph-nodes in the walls of the intestine are often swollen. (Fig. 1.)

FIG. 1.



Acute catarrhal colitis. Increased production of mucus. Desquamation of epithelium. Swelling of lymph-node.

In children there may also be an infiltration of the glandular coat, with pus-cells and necrosis of the swollen lymph-nodes, with the formation of little ulcers

It must be admitted that, although this form of colitis is of frequent occurrence, our knowledge of its causation is not very definite. A variety of bacteria have been found in the passages, but no one of them can be considered as a certain cause of the inflammation. As probable causes may be enumerated impure water and milk, unripe or decayed fruits and vegetables, crowded rooms, and hot weather.

If the inflammation is confined to the lower end of the colon, it regularly runs its course within a week, and the patient recovers. The principal symptoms are the local ones: pain in the rectum, an irritability of its mucous membrane, which makes it try to discharge everything in contact with it, and the frequent passage of small quantities of blood and mucus. But little fecal matter is discharged. In addition there is a moderate rise of temperature, with more or less prostration. Some of the patients do not go to bed, some do not even stop work.

If, however, the inflammation not only involves the rectum, but extends up into the colon, the patients are more seriously ill, especially if they are young children. The quantity of mucus discharged from the bowels is considerable, and very little fecal matter is passed for one or two weeks. As the inflammation subsides the quantity of mucus decreases and that of fecal matter increases. In these patients the temperature is higher, the duration of the disease longer, and the prostration greater. Adults regularly recover, but children often die.

The ordinary method of treating these patients is by rest in bed, a fluid diet, castor oil or sulphate of magnesia to empty the colon of fecal matter, and combinations of bismuth and opium.

Another satisfactory plan is to irrigate the rectum every day with from one to two quarts of an infusion of flaxseed, and give no medicine.

Such an acute colitis is sometimes followed by a chronic colitis, which may continue for years. Such a chronic colitis regularly follows one of two types.

(*a*) The chronic inflammation is confined to the rectum, and is attended with a gradual thickening of the glandular, connective, and muscular coats. The patients have frequent small passages of mucus and blood. They lose flesh and strength as long as the colitis continues. The most efficient treatment is by local applications to the rectum and residence in a dry inland climate. But the natural tendency of the inflammation is to continue, and many of the patients do not get well.

(*b*) The chronic inflammation may involve any part of the colon or its whole length. There are no anatomical changes in the wall of the colon. The feces are sometimes formed, sometimes fluid. Mucus is passed in varying quantities and at varying intervals. According to the position of the inflammation in the colon the mucus is discharged before the feces, with the feces, or after the feces. The patients suffer from more or less abdominal pain and loss of nutrition. Many of them become hypochondriacs. Treatment is often difficult, and it is well to remember that the general health of the patient is of more consequence than the quantity of mucus which he discharges from the bowels. This condition must not be confounded with the so-called "membranous enteritis."

2. *Acute colitis with a large exudation of serum.* These cases are not to be confounded with the cases which I have described elsewhere under the name of "morning diarrhœa." The condition is an inflammatory one, and not a functional disturbance of the intestine.

The disease is not a fatal one, and I have never had the opportunity of seeing the colon of one of these patients. The character of the symptoms is such as to make one believe that the inflammation involves the upper part of the colon, and that the exudation of serum into the cavity of the gut is the principal feature of the morbid process.

This form of colitis is especially common when, during the summer, there is a week of continuous hot weather. Cases are seen, however, at all times of the year. How far water or milk or food may be responsible for an attack it is difficult to say. In some persons there is a well-marked predisposition to this form of colitis, so that they suffer from attacks summer after summer.

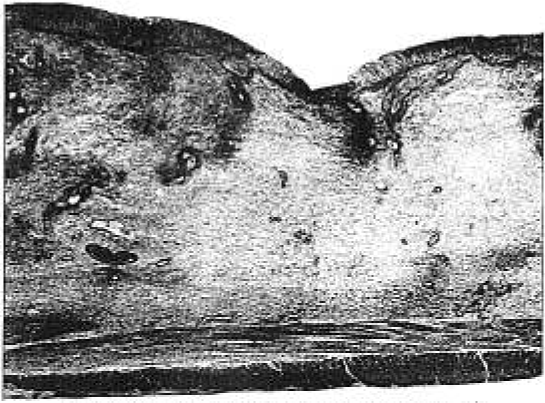
The patients have at first a feeling of discomfort in the abdomen or colicky pains, a moderate amount of prostration, and sometimes nausea. Then there is the feeling of the necessity for emptying the bowels. The patients go to the water-closet, sit down, the sphincter opens, and a large quantity of fluid runs out without any effort of expulsion. The fluid consists of fluid feces, serum, and mucus. The quantity of each discharge is considerable, sometimes as much as two quarts.

There are a number of such discharges during each twenty-four hours. The patients are not always confined to bed, but they are weak and miserable. As a rule, there is no febrile movement. Such an attack may only last for a few days, or it may continue for weeks or months.

TREATMENT. A large number of the cases get well under a variety of treatments or even without any medication at all; but, on the other hand, there is a considerable number of cases in which the disease continues in spite of treatment. Every year I see several patients in whom the colitis has continued for months in spite of treatment by diet, opium, bismuth, and the intestinal antiseptics. The best plan for the management of these patients is this: A milk-diet except for one solid meal a day, one-fourth of a grain of codeia after each movement of the bowels, and five minims of castor oil with five grains of salol, to be taken together four times a day.

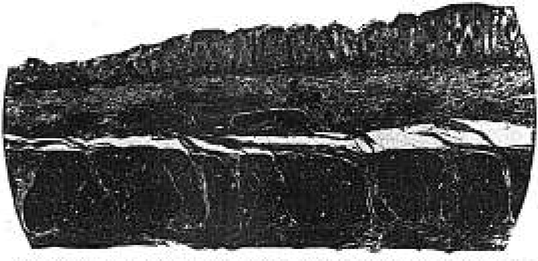
II. There is a form of colitis of which the most marked anatomical feature is the infiltration of the connective tissue coat of the colon with pus-cells. (Fig. 2.) This infiltration is a large one, so that the wall of the colon is irregularly thickened. The glandular coat is also infiltrated with pus, but to a much less extent. I have only seen a few cases of this form of colitis, so that I cannot give a complete account of it. The inflammation involves the upper rather than the lower part of the colon. The passages are diarrhœal and not dysenteric. The patients look as if they were suffering from septic poisoning. The disease may

FIG. 2.



Purulent colitis. Infiltration of the connective-tissue coat with pus-cells.

FIG. 3.



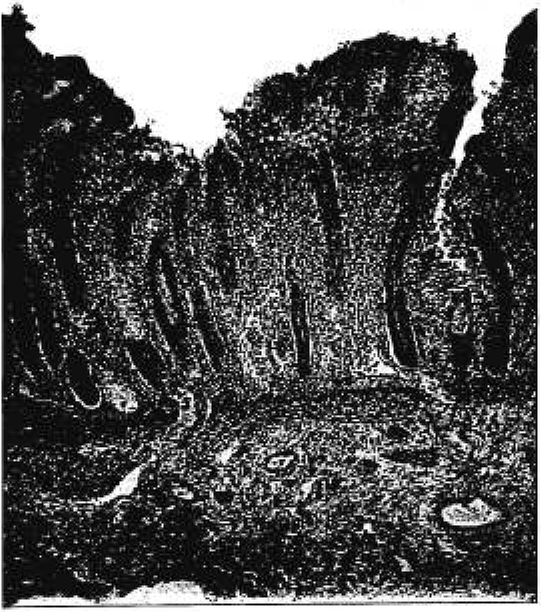
Productive and necrotic colitis. Growth of connective-tissue cells in the glandular coat, with destruction of the tubules.

prove fatal within a few days or may continue for so long as a year. Treatment is altogether unsatisfactory.

III. There is a form of colitis to which I wish to call especial attention, because it is one of the most important forms of the disease that we have to deal with in New York. (Fig. 3.)

The anatomical characters of this form of colitis are: an increased production of mucus, an exudation of serum, an emigration of white blood-cells, a growth of new connective tissue in the glandular coat and the connective tissue coat, and small areas of necrosis of the glandular coat.

FIG. 4.

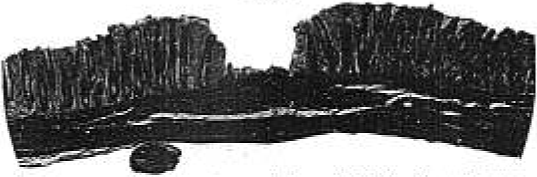


Productive and necrotic colitis. Infiltration of the glandular coat with pus-cells.

The inflammation prefers the upper part of the colon, but it may involve its entire length or be confined to its lower third. (Fig. 4.)

The gross appearance of the colon is that of congestion of the mucous membrane, with perhaps a coating of mucus—the ordinary appearance of an acute catarrhal inflammation; but if we look more closely we see that in addition there are numerous small, superficial ulcers, many of them so small that they cannot be seen with the naked eye. In the old and severe cases, however, instead of these small ulcers we find a destruction of large areas of the glandular coat. (Fig. 5.)

FIG. 5.



Productive and necrotic colitis. Circumscribed necrosis of the glandular coat, forming very small ulcers.

The morbid changes belong to the glandular coat, but may extend to the superficial layers of the connective-tissue coat. The destruction of the glandular coat is effected by simple necrosis or by an infiltration with pus-cells. The ulcers do not have overhanging edges. Between the ulcers some of the tubules show necrosis of their epithelium, while some are obliterated by the growth of cells between them. The tissue between the tubules is thickened by a growth of connective-tissue cells, or by an infiltration with pus-cells, or by both. There may also be a moderate infiltration of the superficial layers of the connective-tissue coat with pus-cells and connective-tissue cells.

I have never been able to make out the causation of this form of colitis. It is not infrequent in New York. It is seen both in hospital and private practice. It occurs at all seasons of the year. Whether it is caused by impure water or milk or food I do not know. The feces show the usual variety of micro-organisms, but the general features of the disease are those of a streptococcus infection.

The invasion of the disease is sudden or gradual. If it is sudden, the patients are attacked with vomiting, frequent passages, abdominal pain, prostration, and a rise of temperature. The first passages are diarrhœal—large or small—and composed of fecal matter, serum, and mucus; or dysenteric— small, painful, and composed of mucus and blood. The dysenteric passages do not continue; they belong to the first days of the disease. The prostration is considerable; the patients look sicker than they do with an ordinary catarrhal colitis. Sometimes there is even a sort of shock given by the invasion of the disease; the patients may have attacks of syncope.

If the invasion is gradual, the patients begin with what seems to be an ordinary diarrhœa—three to five loose fecal movements a day, with more or less colicky pain or constant abdominal pain. There is at first no rise of temperature. The patients gradually lose flesh and strength, but it may be several weeks before they go to bed. And yet it is a matter of much importance that the character of the colitis should be recognized and the patients put to bed during this early stage of the disease.

As the disease goes on the passages continue to be frequent and of considerable size. They are composed of fluid feces, serum, mucus, and often blood. The mucus is present in considerable quantities; it is diffuse or in the form of nodules. If the patients improve, the fecal matter increases in quantity and becomes more consistent, while the quantity of serum, mucus, and blood diminishes. The abdominal pain, whether colicky or constant, continues. There is no appetite. In some cases nausea and vomiting are very troublesome symptoms. There is usually a rise of temperature in the afternoon, even in the chronic cases. The patients steadily lose flesh and strength. Of the cases which recover some run their course within four weeks and recover entirely, and yet while the disease is going on the patients are sick enough to cause much anxiety. But there is a considerable proportion of cases in which the disease continues for months before the patients get entirely well. And, finally, there are patients who are under observation for years who often seem almost well, but yet always relapse.

In the fatal cases I have seen the disease proved fatal in seven days, but that was in a person already exhausted by privation and exposure. The rule is that the disease continues for a number of months before the patients die. Occasionally we see such a colitis in its early stages in persons who die from pneumonia. The prognosis is serious. A moderate number die from the disease, and in a very considerable number the disease is protracted for months.

The most important time for the treatment of this form of colitis is during the early stages of the disease. It is in the patients who are neglected at first that we see the protracted forms of the disease.

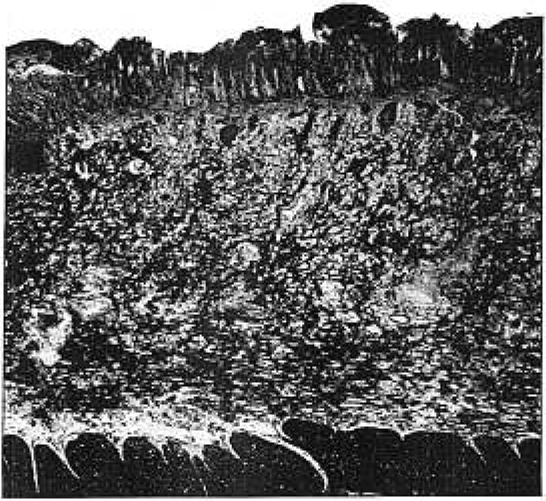
No matter how mild the invasion of the disease is the patients should at once be put to bed and on a diet composed principally of milk, and this management must be kept up until all evidences of acute inflammation have disappeared.

In the chronic cases, on the other hand, it is important that the patients should get out of doors and eat a sufficient quantity and variety of food. As a rule, these patients do best in a dry, elevated, inland climate.

During the earlier stages of the disease irrigations of the rectum are of service, and even in the chronic cases such irrigations may be used with advantage from time to time.

As regards medication, it has seemed to me that I have obtained the best results, both in the acute and chronic cases, by the use of combinations of opium, salol, and castor oil; but I must admit that these remedies sometimes fail, and that I see patients recover under other plans of treatment. In the chronic cases the patients are apt to take in the course of the disease a considerable number of drugs. For example, a patient who was sick for eleven months, and was successively under the care of four different physicians, received the following drugs: Salol, castor oil, tincture of opium, dilute sulphuric acid, Blaud's pills, sulphate of morphine, subnitrate of bismuth, sulphate of strychnine, subcarbonate of bismuth, salicylic acid, nitrate of silver, resin of turpentine, salicylate of bismuth, naphthaline, sulphate of quinine, ichthyol, sulphide of calcium, liquor potassæ, codeia, acetate of lead and opium,

FIG. 6.



Croupous colitis. Commencing necrosis of the glandular coat, infiltration of the connective tissue coat with fibrin.

dilute nitric acid, carbonate of guaiacol, bone-marrow, Fowler's solution of arsenic, tincture of cubebs, tincture of hyoscyamus, phenacetin, acetanilid, biniodide of mercury, iodide of potassium. He also received enemata of starch and laudanum and of corrosive sublimate 1 : 10,000. The man went quietly on with from three to five passages a day, composed of fluid feces, mucus, and sometimes blood, with an afternoon temperature between 100° and 103° F., with progressive loss of flesh and strength. During the tenth month of his illness the afternoon temperatures became lower, and the man began to gain flesh and strength. After this the blood and mucus gradually disappeared from the passages, and finally at the end of the eleventh month he seemed to be well.

IV. There is a form of colitis characterized by the combination of an exudation from the bloodvessels, which forms fibrin, and of necrosis. This is commonly called croupous or diphtheritic dysentery.

The inflammation regularly begins in the rectum. It may remain confined to this part of the colon, or it may extend upward and involve the whole length of the colon and even the lower part of the small intestine. (Fig. 6.)

The irritants which cause the colitis seem to act, according to their virulence, upon the glandular coat alone, or upon the connective-tissue coat also, or upon the whole thickness of the wall of the colon. In the majority of cases the inflammatory changes are produced not uniformly, but in patches. (Fig. 7.)

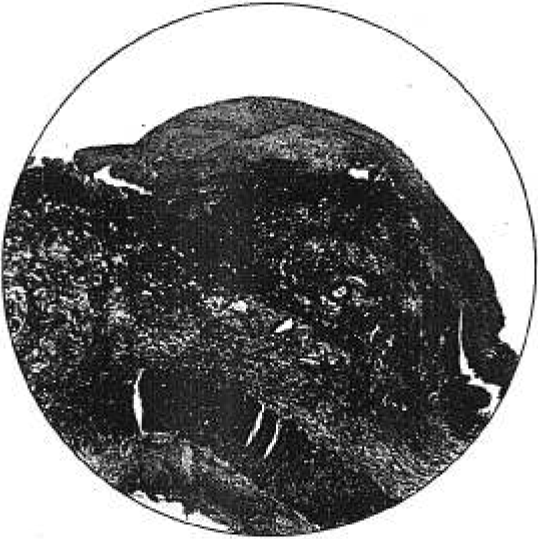
In the milder cases, therefore, we find the inner surface of the colon studded here and there with little patches of false membrane. Vertical sceretions of the wall of the colon at these points show a layer of fibrin and pus, necrosis of the superficial portions of the glandular coat, and a little infiltration of the glandular coat with fibrin and pus.

In the more severe cases the layer of fibrin on the inner surface of the colon is thicker, large infiltrations of fibrin are found in the connective-tissue coat, and even the muscular and peritoneal coats are involved in the exudation. The necrosis involves the whole thickness of the glandular coat, often extends into the connective-tissue coat, and may involve the whole thickness of the wall of the colon.

The dead tissue soon sloughs away and leaves ulcers of varying number, size, and depth.

In New York this form of colitis belongs to the autumn months. Not infrequently people bring it back to town with them from the country. In such people there may be a history of contaminated drinking-water. The behavior of the inflammation is that of one caused by the presence of pathogenic bacteria, and such bacteria can be demonstrated in the feces and in the wall of the colon. But it is not to be forgotten that identical anatomical changes are produced by poisoning with corrosive sublimate, so that it is possible that such a colitis may be produced by other irritants than bacteritic toxins.

FIG. 7.



Croupous colitis. False membrane, necrosis of the glandular coat, infiltration of the connective-tissue coat with fibrin.

SYMPTOMS. The patients have numerous small, painful passages of blood and mucus. If the inflammation extends above the rectum, they also pass large quantities of brownish fluid. There is nearly constant rectal pain, irritability, and tenesmus. There may also be colicky pains and strangury. Many of the patients vomit, especially at the beginning of the disease. There is regularly a well-marked febrile movement throughout the disease, but in some of the bad cases the temperature is low throughout. In the severe cases the prostration is marked, the heart's action is rapid and feeble, delirium and stupor are developed. The disease lasts for from one to six weeks.

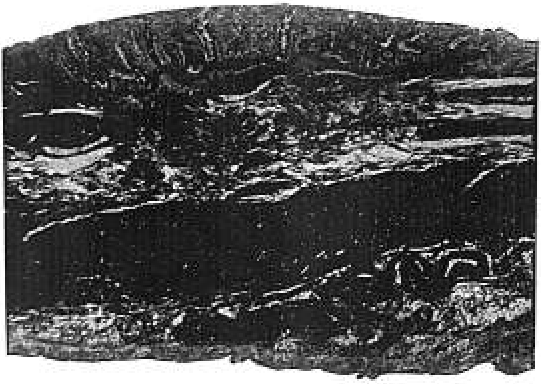
PROGNOSIS. The prognosis is serious on account of the severe character of the lesion, the general poisoning of the patient, and the permanent changes left in the wall of the intestine. If the whole length of the colon is involved, the patients rarely get well. If the ulcers are large and deep, although the patient recovers from the inflammation, he is left with a colon so badly damaged that he is always an invalid.

All the patients are to be put to bed and kept on a fluid diet. Most of them require some preparation of opium to keep them comfortable. Many of them need alcoholic stimulants. It is important to distinguish whether the inflammation is confined to the rectum or whether it extends higher up. If it is confined to the rectum, it can be treated by irrigation alone; if it involves a larger part of the colon, drugs must be given in addition to the irrigation. Two quarts of an aqueous solution of corrosive sublimate, 1 : 10,000, have given me the best results as an irrigation. Ipecac, in 20-grain doses once or twice a day, seems to be the most efficient drug. I have also seen good results, however, from the early use of salol in 5-grain doses every hour.

V. There is a form of colitis in which the characteristic necrotic and inflammatory changes seem to be due to an infection with the amœba coli.

I have examined the colon in eleven fatal cases. In all but one the entire length of the colon was involved; in that one only the upper two-thirds.

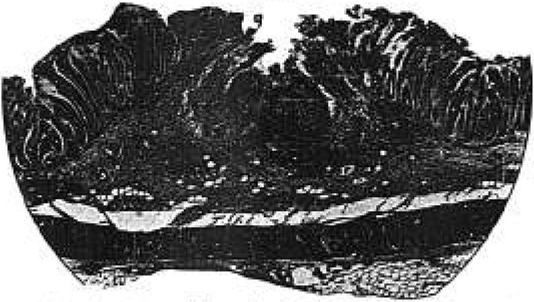
FIG. 8.



Amœbic colitis. Diffuse necrosis of the glandular coat.

The main infection with the amœbæ is in the connective-tissue coat, and it is in this coat that the morbid changes begin. The amœbæ seem to cause swelling and necrosis, while other inflammatory changes may be caused by an additional infection with streptococci or other bacteria. The exact method of the necrosis varies somewhat, and several different forms may be present in the same colon. (Fig. 8.)

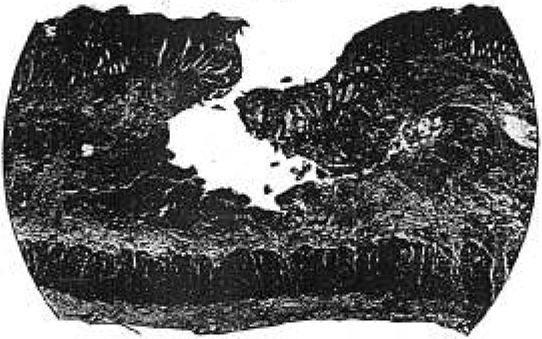
FIG. 9.



Amœbic colitis. Circumscribed necrosis and swelling of the connective-tissue coat.

(*a*) The necrosis may be confined to the glandular coat; there is swelling of the intertubular tissue and death of the tubules. In this way considerable portions of the glandular coat are destroyed and the connective-tissue coat is laid bare. At the same time there is a growth of large and small cells in the connective-tissue coat. (Fig. 9.)

FIG. 10.



Amœbic colitis. Ulcer formed by circumscribed necrosis of the connective-tissue coat.

(*b*) There are circumscribed thickenings of the connective-tissue coat, which soon become necrotic. In this way the glandular coat is undermined, and ulcers with overhanging edges are formed of varying size and depth.

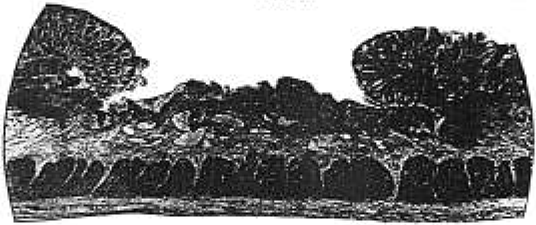
(*c*) Large portions of the whole thickness of the wall of the colon are swollen and completely necrotic. The patients usually do not live long enough for these dead portions to slough away. (Fig. 10.)

In four of the cases there were amœbic abscesses in the liver. In one case there were amœbic abscesses in the lower lobe of the left lung. It is not easy to determine how persons become infected with amœbæ in New York, where the drinking-water all comes from the same source. Most of the patients had been living in the city for several years.

The invasion of the symptoms is either acute or gradual.

In the acute cases the patient is suddenly attacked with colicky pains and diarrhœa, often with nausea and vomiting and sometimes a rise of temperature. The stools are frequent, fluid, and sooner or later contain blood and mucus. The quantity of blood may be considerable. (Fig. 11.)

FIG. 11.



Amœbic colitis. Ulcer formed by circumscribed necrosis of the connective-tissue coat.

In the more gradual invasion there is at first nothing but a painless diarrhœa—several loose, fecal stools in the twenty-four hours.

The patients have no appetite; they lose flesh and strength and become anæmic. In some of them the symptoms are continuous; in others there are remissions and exacerbations. Although the temperature may reach 104° F., the febrile movement is not a feature of the disease. The most noticeable symptoms are the frequent stools of fluid feces, bad-smelling fluid, mucus, and blood, the pains in the abdomen, and the progressive loss of flesh and strength. The disease may only continue for ten days or it may be protracted over several months. The same patient may have several attacks of the disease, even for a number of years.

A serious complication is the formation of the amœbic abscesses of the liver, which may occur at any time in the course of the colitis, either in mild or severe cases.

Of less frequent occurrence are the amœbic abscesses in the lungs, with cough and bloody, foul-smelling expectoration.

I have seen one case in which the pulmonary symptoms preceded the diarrhœa by three days.

Perforation of the intestine followed by collapse or by peritonitis sometimes occurs. There may also be peritonitis without perforation.

I have seen one case, which lasted for six weeks, with temperatures up to 105° F., with the combined symptoms of a typhoid fever and a colitis. After death there were found the ordinary lesions of typhoid fever in the ileum and the mesenteric glands, and of amœbic colitis in the colon.

PROGNOSIS. The prognosis is serious, not only from the extent of the destruction of the wall of the colon, but from the liability to abscess of the liver, abscess of the lung, and peritonitis.

The indications are to use irrigations and drugs. The best irrigation is a solution of corrosive sublimate, 1 : 10,000. The most useful drugs are ipecac in large doses and castor oil in small doses.

VI. There is a form of necrotic colitis of which I have only seen a few examples. They were all hospital cases with imperfect histories and no account of the passages from the bowels. The history of one case will serve as a sample:

A woman, aged about fifty years, of intemperate habits, was brought into the hospital twenty-four hours before her death. It was said that for several months she had been losing flesh. For three days she had been vomiting coffee-ground matter. Nothing was learned concerning the passages from the bowels. She was in the moribund condition when brought into the hospital, with a temperature of 96° F., pulse of 160, and still vomiting coffee-ground matter.

At the autopsy there were found general bronchitis, small abscesses in the kidneys, cirrhosis of the liver, a normal stomach and small intestine. The colon, for a distance of three feet down from the ileo-cæcal valve, was in a condition of intense congestion. There were a number of small and large black thickenings of the glandular coat.

In the glandular coat there was some increase of mucus in the tubules and a little growth of cells between them. In the black thickenings the bloodvessels were distended with blood. The glandular and connective-tissue coats were infiltrated with pus-cells. The glandular coat was necrotic. The circumscribed character of these areas of extreme congestion and purulent infiltration would suggest that they were caused by infectious emboli.

There are, then, five forms of colitis which come under observation in New York.

1. *Acute catarrhal colitis.* An inflammation attended with the production of increased quantities of mucus and serum, but without struc-

tural changes. Its natural disposition is to run a short course and terminate in recovery, and it is therefore treated successfully in a variety of ways. In children, however, the disease may be fatal, and in adults it may be followed by chronic colitis.

2. *Acute purulent colitis.* This is not a severe catarrhal inflammation, but is a purulent inflammation of the connective-tissue coat. This coat is thickly infiltrated with pus, while the changes in the glandular coat are secondary. The symptoms are largely those of septic poisoning, and the disease is regularly fatal.

3. *Acute productive and necrotic colitis.* An inflammation which involves principally the glandular coat. The main features are the necrosis and the growth of new tissue. To these correspond the septic symptoms and the disposition of the disease to continue. The symptoms may resemble those of catarrhal or of amœbic colitis. The favorable cases last as long as three or four weeks, the unfavorable cases last for months. A moderate number of the cases are fatal.

4. *Croupous or diphtheritic colitis.* An inflammation of distinctly infectious character, and one which is often fatal. It is an old and well-recognized form of colitis.

5. *Amœbic colitis.* The inflammation is caused by the infection of the connective-tissue coat of the colon with the amœba coli. The presence of this organism causes a variety of necrotic and inflammatory changes. It is this form of colitis which is so often associated with abscess of the liver.

As regards the treatment of these different forms of colitis, it seems to me that the first thing to determine is whether the inflammation is confined to the lower end of the colon or extends higher up; the second thing to determine is whether the inflammation is or is not accompanied by necrosis of portions of the wall of the colon.

If the inflammation is confined to the lower end of the colon, it can be treated by irrigation alone; if it is confined to the upper two-thirds of the colon, it can be treated by drugs alone; if it involves the whole length of the colon, both drugs and irrigations are necessary.

An irrigation for an adult should consist of as much as two quarts of fluid, and the fluid must run in and out freely.

If the colitis is acute and without necrosis, the best fluid is an infusion of flaxseed; if it is a colitis with necrosis, solutions of corrosive sublimate, chloride of zinc, and formalin have given me the best results.

If the inflammation involves the upper part of the colon and is without necrosis, the preparations of opium and of bismuth are usually all that are necessary; but if it is a colitis with necrosis, ipecac in large doses, castor oil in small doses, nitrate of silver, salol, and naphthalin are the most useful drugs.